339251

PRELIMINARY CLOSE OUT REPORT
COMMODORE SEMICONDUCTOR GROUP SITE
MONTGOMERY COUNTY, PENNSYLVANIA

I. INTRODUCTION

This Preliminary Close Out Report documents that the U.S. Environmental Protection Agency ("EPA") has completed construction activities for the Commodore Semiconductor Group Superfund site ("Site") in accordance with *Close Out Procedures for National Priorities List Sites* (OSWER Directive 9320.2-09A-P). EPA, the Pennsylvania Department of Environmental Protection ("PADEP"), the U.S. Army Corp of Engineers ("USACE"), and Advanced GeoServices Corporation ("AGC") on behalf of Allen Bradley, LLC, the PRP conducting the work, performed a pre-final inspection on August 9, 2000. Based on this inspection, EPA determined that the PRP has constructed the remedy in accordance with the Remedial Design ("RD") plans and the performance-based specifications. The PRP has also initiated activities necessary to achieve performance standards and site completion.

II. SUMMARY OF SITE CONDITIONS

Background

The Commodore Semiconductor Group Site ("CSG Site" or "Site") is located in Lower Providence Township, Montgomery County, PA. The Site consists of an approximately 14-acre parcel of property located at 950 Rittenhouse Road, in Audubon, Pennsylvania as well as surrounding property beneath which contaminated groundwater is located.

Commodore Business Machines ("CBM") was a prior owner/operator of the CSG Site and manufactured semiconductor chips from approximately 1969 to 1992. The Allen-Bradley Company, Inc. ("Allen-Bradley") was the owner of the Site from approximately 1969 to 1978, during which time CBM operated there. Trichloroethene ("TCE"), a degreasing agent, was used by CBM in the semiconductor manufacturing process from 1970 until 1981. The TCE used in the process generated a TCE waste which was disposed of at the Site in underground storage tanks. In 1978, the Audubon Water Company ("AWC") detected TCE in two of its public water supply wells located near the CSG Site. After some investigation, the Pennsylvania Department of Environmental Resources (PADEP's predecessor) identified the CSG facility as a possible source of TCE.

EPA proposed the CSG Site for inclusion on the National Priorities List for Uncontrolled Hazardous Waste Sites ("NPL"), 40 C.F.R. Part 300, in January 1987. The Site was included on the final NPL on October 4, 1989 (54 Fed. Reg. 41000). CBM entered into an Administrative Order by Consent, EPA Docket No. III-88-09-DC, for the performance of a Remedial Investigation and Feasibility Study ("RI/FS") on July 29, 1988. RI/FS Reports were submitted to EPA by CBM in February 1992 and July 1992. Contaminants of concern at the Site are volatile

organic compounds, primarily TCE and its breakdown products. Ingestion of, and contact with, contaminated groundwater poses the primary risk to human health.

Remedial Construction Activities

EPA issued the Record of Decision ("ROD") for the Site on September 30, 1992. Major components of the ROD included: the construction of a waterline extension to connect affected and potentially affected parties to the public water supply system owned by the Audubon Water Company; maintenance of existing whole-house carbon water treatment units until the waterline extension was constructed; groundwater extraction and treatment for volatile organic contaminants; long-term groundwater monitoring; and restrictions on the installation of new wells in areas of contamination which exceed Maximum Contaminant Levels ("MCLs"). On May 5, 1993, EPA issued an Explanation of Significant Differences deleting Pennsylvania's secondary maximum contaminant levels as relevant and appropriate requirements for the discharge of treated water to the local water company.

EPA issued an Administrative Order for Remedial Design/Remedial Action ("RD/RA") for the CSG Site to CBM and to Allen-Bradley Company, Inc., Docket No. III-93-37-DC ("Section 106 Order"). Allen-Bradley Company, L.L.C., is the corporate successor of Allen-Bradley Company, Inc. Allen-Bradley is performing the clean-up of the CSG Site in compliance with the Section 106 Order. Allen-Bradley selected Advanced GeoServices Corporation ("AGC") as their prime remedial design and remedial action contractor.

Operable Units

The ROD remedy was divided into two parts or operable units. Operable Unit One, Water line Extension, focused on providing safe drinking water to the residences. Operable Unit Two, Groundwater Pump and Treat, addresses the contaminated groundwater. Operable Unit Two requires long-term remedial action.

Operable Unit One (OU1)

OU1 included the installation of a waterline extension to twelve residences along Audubon and Rittenhouse Roads and maintenance of the existing whole-house carbon filtration systems until the remedy was constructed. Filters were maintained also in homes southeast of the Site along Audubon Road near Trooper Road, (identified as Group 2 in the Feasibility Study - see attached map) until EPA's revaluation of this area confirmed the existence of a groundwater divide which would prevent site-related contaminants from migrating in this direction. The very low levels of contaminants detected in these wells are not considered to be related to releases from the Site. Documentation to support this reevaluation can be found in the Pre-Design Investigation Reports: *Step I Technical Memorandum,* February 15, 1996 and *Step 2 Technical Memorandum,* August 29, 1997.

EPA provided final approval of the *Final Design for the Audubon Water Company Waterline Extension* on November 18, 1994. Onsite construction of the waterline extension began during the week of September 16, 1996. Installation of the service laterals to residences began in November 1996. The service laterals were installed from the curb stops on the waterlines to the homes, through the foundation or basement wall of the property, and either capped (for homeowners refusing to connect to the public water) or temporarily plugged (pending activation of the waterline and connection to the AWC system). Final restoration of pavement, driveways and yards was completed in the Spring of 1997. The waterline was officially transferred to AWC in November 1997. A total of fourteen properties (two homes were constructed post-ROD) had service laterals installed. The indoor plumbing of each property electing to be connected to the waterline was connected to the service laterals in winter and early Spring of 1998. A total of ten property owners elected to be connected to the waterline. On June 14, 1998, EPA accepted the *Remedial Action Report for the Audubon Water Company Waterline Extension,* dated June 1, 1998.

Operable Unit Two (OU2)

EPA provided contingent approval of the *Final Design Report and the Remedial Action Work Plans* on September 9, 1999 for the groundwater extraction and treatment system phase of the remedy. The PRP awarded the construction contract to AGC on September 8, 1999. AGC served as the design engineering firm and construction contractor in a performance-based specifications approach.

The remedial design incorporated the use of two treatment systems: the newly constructed Site System and a pre-existing air stripping system at AWC's production well, VFCC-2. The newly constructed Site system consists of: a groundwater recovery and equalization system, ion exchange for softening, air-stripping and vapor absorption system, secondary treatment for sulfate and total dissolved solids ("TDS") removal, carbon polishing, and ancillary process systems. The VFCC-2 System consists of a groundwater extraction system, air stripping system, and disinfection and distribution system. The VFCC-2 treatment system will be owned, maintained and operated by the AWC under an agreement between Allen-Bradley and AWC.

In the shallow bedrock unit, contaminated groundwater will be recovered at six shallow bedrock wells and the French Drain sump. (The French Drain is a pre-existing perforated pipe lateral system that collects shallow groundwater from the CSG building expansion area basement.) In the deep bedrock unit, the contaminated groundwater will be recovered at two pre-existing Audubon Water Company production wells identified as VFCC-2 and VFCC-4. The groundwater extracted from the six shallow bedrock wells and VFCC-4 will be piped to the new treatment plant which is capable of treating the extracted groundwater to below MCLs for VOCs, and secondary MCLs for sulfates and total dissolved solids at a flowrate of 150 gallons per minute. Treated water will be discharged by a gravity flow pipe to a wet well owned and operated by the Audubon Water Company. Water recovered at VFCC-2 will continue to be treated by the VFCC-2 treatment system. In addition, the shallow groundwater recovered by the French Drain

sump will be piped to the treatment plant, mixed with brine water from the treatment plant, and then discharged to the sanitary sewer.

Onsite construction of the groundwater extraction system and treatment building began on September 20, 1999. EPA in conjunction with the USACE and PADEP conducted a pre-final inspection on August 9, 2000. EPA, USACE and PADEP determined that the RA activities were constructed and /or completed satisfactorily. Punch list items to be completed by the contractor include

- installation of a fence around the acid storage tank
- reseeding of certain areas along Van Buren Avenue
- repatching of asphalt in certain areas.
- installation of gaskets on well vault lids
- repair of parking lot light

These punch list items are considered minor in that they will not delay or affect performance of the remedy.

III. DEMONSTRATION OF CLEANUP ACTIVITY QUALITY ASSURANCE AND QUALITY CONTROL

Activities at the Site were consistent with the RD/RA documents reviewed by EPA, USACE, and PADEP, and approved by EPA. EPA quality assurance/quality control ("QA/QC") procedures or procedures approved by EPA were followed during construction.

The PRP construction contractor adhered to the approved *Remedial Action Construction Quality Assurance Plan* ("CQAP"). The program used throughout the RA was sufficiently rigorous and in conformance with EPA and State standards. All confirmatory inspections, independent testing, audits, and evaluations of materials and workmanship were performed in accordance with the construction drawings, technical specifications and the CQAP Construction quality assurance was performed by the USACE in accordance with the approved plan.

As directed by EPA, construction activities were overseen by USACE. USACE performed oversight of construction activities on a weekly basis, at a minimum. During the construction of the treatment building, USACE had a daily presence. EPA's Remedial Project Manager and PADEP's Project Officer also performed regular site visits and oversight activities on a frequent basis to review construction progress and evaluate and review the results of QA/QC activities. Deviations or non-adherence to QA/QC protocols or specifications were properly documented and resolved.

The QA/QC program used throughout the RA was sufficiently rigorous and in conformance with EPA and state standards. EPA and PADEP determined that all analytical results are accurate to the degree necessary to assure satisfactory execution of the RA and consistency with the ROD and RD documents.

IV. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION

The following activities are estimated to be completed according to the following schedule:

Task	Estimated Completion	Responsible Organization
Approve RA Sampling & Analysis Plan for monitoring performance of the remedy	09/30/00	EPA/State
Approve Operations and Maintenance Plan	10/30/00	EPA/State
Complete Final Inspection	10/30/00	EPA/State
Approve Interim RA Report	12/30/00	EPA/State
Determine Remedy Operational and Functional	10/30/00	EPA/State
Institutional Controls to restrict the installation of new wells where MCLs are exceeded.	12/30/2001	EPA
Five-Year Review	09/30/05 (and every 5 years)	EPA
Achieve groundwater cleanup standards	2028	PRP
Approve Final RA Report	12/30/2028	EPA/State
Final Closeout Report (Site Completion)	03/30/29	EPA
Site Deletion	03/30/30	EPA

This groundwater restoration remedy requires a continuous operation phase, long after the system has been constructed, to achieve the cleanup standards specified in the ROD. The Site will not be eligible for Site Deletion until all response actions are successfully completed. The Final Closeout Report ("FCOR") will document compliance with statutory requirements, describe how

the cleanup was accomplished and provide the technical justification for Site Completion. After the completion of the FCOR the site will be eligible for Site Deletion.

V. SUMMARY OF REMEDIATION COSTS

The original 30 Year Present Worth Cost estimate to implement the remedial action described in the ROD was $5.6 million. This was calculated using: Capital Costs of $946,910 and O& M /Year (years 1-2) of $446,500, and O& M /Year (years 3-30) of $404,300.

The PRP has indicated the construction costs for OU1, Waterline Extension, were $172,000. This number does not include costs associated with the design or legal fees paid by the PRP. For OU2, Groundwater Pump and Treat, the PRP has estimated the following: Capital Cost: $3.6 million (includes $574,000 in sewer capacity rights to Lower Providence Township Montgomery County Sewer Authority) and yearly O&M costs (years 1-3) of $270,000 and yearly O&M costs (years 4-30) of $250,000

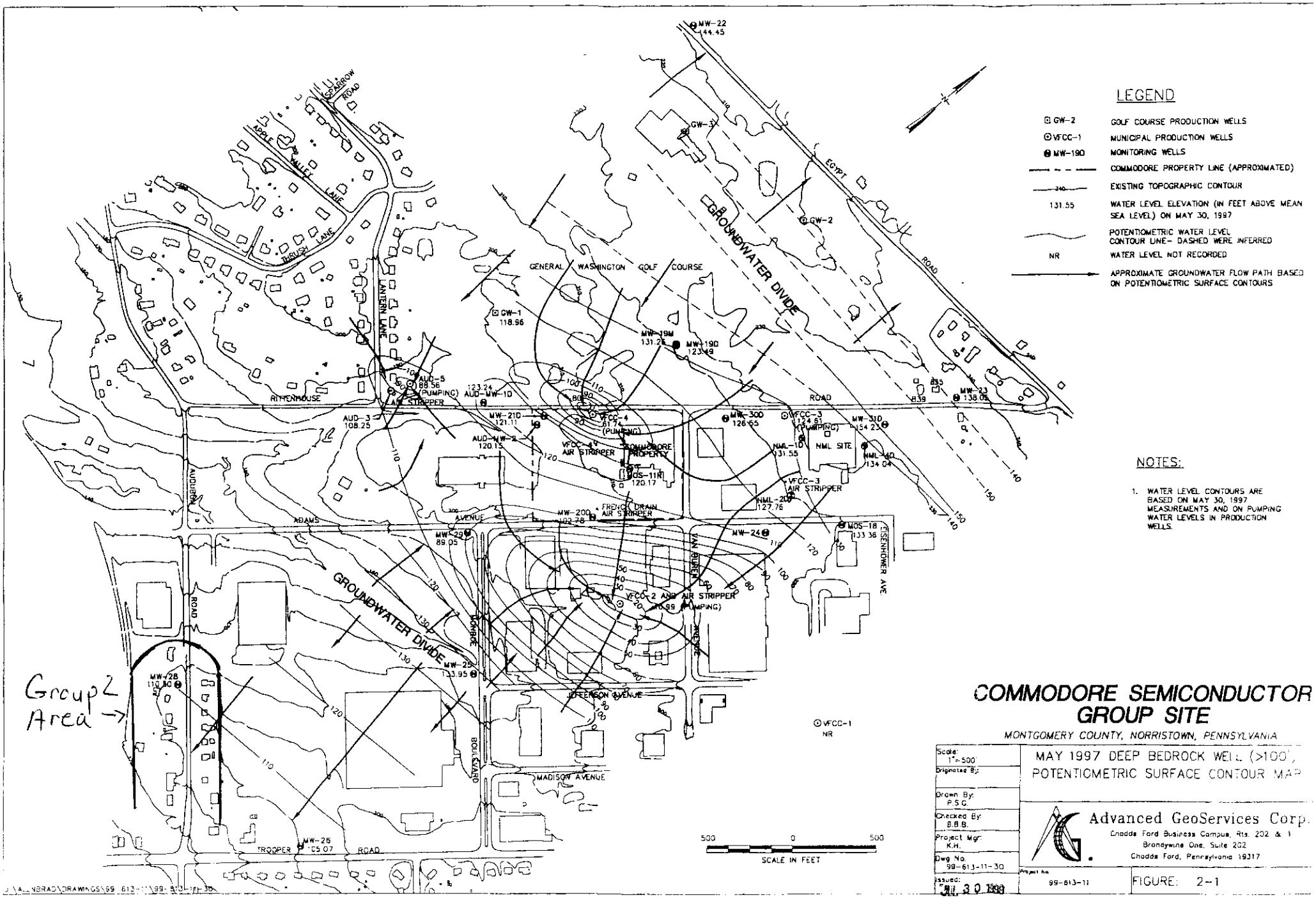
The increase in capital cost from ROD to the RA construction is attributed to modifications to the groundwater treatment process and to costs associated with the numerous negotiations and discussions with AWC, the Site property owner, and other public and private entities. The Site treatment system was expanded to include groundwater treatment for sulfate removal. Secondary treatment for sulfates was incorporated into the treatment process to facilitate beneficial reuse of the water by the AWC. Allen-Bradley entered into an agreement with the AWC for the use of three AWC's wells, as extraction wells, and subsequent discharge of treated water to the AWC. Treatment of the groundwater to remove sulfates prior to discharge to the AWC required substantial expansion of the treatment building and other treatment system components to accommodate this modification.

VI. FIVE-YEAR REVIEW

Hazardous substance will remain onsite above health-based levels until the groundwater cleanup standards have been achieved. Pursuant to CERCLA Section 121 (c) and as provided in current guidance on Five-Year Reviews: OSWER Directive 9355.7-02, *Structure and Components of Five-Year Reviews*, May 23, 1991, and OSWER Directive 9355.702A, *Supplemental Five-Year Review Guidance*, July 26, 1994 and the *Second Supplemental Five-Year Review Guidance,* December 21, 1995, EPA must conduct a policy five-year review. Trigger for a policy review is construction completion for the Site. Therefore the first Five-Year Review Report will be completed by September 2005.

Abraham Ferdas, Director
Hazardous Site Cleanup Division

8/24/00
Date



COMMODORE SEMICONDUCTOR GROUP SITE

MONTGOMERY COUNTY, NORRISTOWN, PENNSYLVANIA

MAY 1997 DEEP BEDROCK WELL (>100') POTENTIOMETRIC SURFACE CONTOUR MAP

Scale: 1"=500'	
Originated By:	
Drawn By: P.S.G.	
Checked By: B.B.B.	
Project Mgr: K.H.	
Dwg No. 99-613-11-30	
Issued: JUL 30 1999	
Project No. 99-613-11	FIGURE: 2-1

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